1041-05-59   **Jim Haglund**, **Kurt Luoto** and **Sarah Mason*** (`samason@davidson.edu`), 310 Friendship Circle, Winston Salem, NC 27106, Afghanistan, and **Steph Van Willigenburg**. *Refinements of the Littlewood-Richardson Rule.* Preliminary report.

We refine the Littlewood-Richardson multiplication rule in several different settings. We begin with a combinatorial rule for the multiplication of a Demazure atom by a Schur function. We utilize composition diagrams and contre-lattice words to describe the non-negative coefficients appearing in the Demazure atom expansion of this product. Building on this, we also describe the product of a quasisymmetric Schur function and a Schur function as a positive sum of quasisymmetric Schur funcitons. Finally, we provide a combinatorial formula for the product of a Demazure character and a Schur function as a positive sum of Demazure characters. This last rule contains the classical Littlewood-Richardson Rule as well as a rule for the multiplication of a Schur function with a Schubert polynomial. (Received July 31, 2008)